Amendments to the Claims

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A computer-executable method for tracking and managing a plurality of lithographic masks through a semiconductor manufacturing environment, wherein the method is embodied in a plurality of instructions for execution by a processor and stored on a memory accessible to the processor, the method comprising:

establishing a virtual fab with a plurality of entities, each entity associated with an internal process to a semiconductor fab or an external process to the semiconductor fab, wherein at least one of the entities includes a service system interface for communicating between a computer system associated with a customer external to the virtual fab and a computer system associated with the virtual fab;

defining a state diagram for tracking the plurality of lithographic masks through the plurality of entities of the virtual fab;

placing each of the plurality of lithographic masks at a pre-determined state of the state diagram; ~~and~~

determining a future location for each of the masks in the virtual fab via the state diagram; and

enabling the customer to identify the pre-determined state of a particular mask and to alter the future state of that particular mask via the service system interface.

2. (Original) The method of claim 1, wherein at least one of the lithographic masks is a physical mask reticle.

3. (Cancelled)

4. (Original) The method of claim 1, wherein at least one of the entities is a manufacturing executing system used to facilitate production in the semiconductor fab.

5. (Original) The method of claim 1, wherein at least one of the entities is a manufacturing team interface for communicating with personnel associated with the semiconductor fab.

6. (Original) The method of claim 1, wherein at least one of the entities represents a specific process used within the semiconductor fab.

7. (Original) The method of claim 1, wherein at least one of the entities is a service system interface for communicating between a computer system associated with an external service provider and a computer system associated with the semiconductor fab.

8. (Original) The method of claim 7, wherein the external service provider is a reticle manufacturer.

9. (Original) The method of claim 7, wherein the external service provider is a separate fab.

10. (Original) The method of claim 1, wherein the virtual fab comprises a plurality of processes of the semiconductor fab.

11. (Currently amended) A system for tracking and managing a plurality of lithographic masks through a semiconductor manufacturing environment, the system comprising:

at least one processor;

at least one memory coupled to the processor; and

a plurality of instructions stored on the memory for execution by the processor, the instructions including:

a first group of instructions for establishing a virtual fab having a plurality of entities;

a second group of instructions for establishing an enterprise mask management system, wherein the enterprise mask management system includes a service system interface for communicating with a customer external to the virtual fab;

a third group of instructions for establishing and maintaining a plurality of state diagrams, the state diagrams having a plurality of states corresponding to the entities of the virtual fab, and the maintaining including updating a progression of a mask through the states being controlled by the enterprise mask management system; and

~~one or more memories for storing the first or second group of instructions~~

a fourth group of instructions for enabling the customer to identify the state of a particular mask and to alter the progression of the mask through the states via the service system interface.

12. (Cancelled)

13. (Original) The system of claim 11, wherein the enterprise mask management system comprises a central entity for managing the progression of states via the state diagram.

14. (Cancelled)

15. (Original) The system of claim 11, wherein the enterprise mask management system comprises an internal quality control entity for providing control of a predetermined quality of the masks.

16. (Original) The system of claim 11, wherein at least one of the lithographic masks is a physical mask reticle.

17. (Currently amended) The system of claim 11, wherein at least one of the lithographic masks is represented by a group of data stored in the memory.

18-20. (Cancelled)

21. (New) An enterprise mask process management system for managing a plurality of lithographic masks within a virtual fabrication environment, the system comprising:

an interface coupling a customer external to the virtual fabrication environment with the enterprise mask process management system;

a fabrication entity internal to the virtual fabrication environment and including a plurality of fabrication states, wherein each of the fabrication states defines one or more operations performed by the fabrication entity with respect to a mask;

a central operation entity internal to the virtual fabrication environment and coupled to the customer via the interface, wherein the central operation entity includes a plurality of management states defining operations for managing a mask outside of the fabrication entity and for communicating with the fabrication facility using at least one of the fabrication states; and

a processor coupled to a memory and accessible to the enterprise mask process management system for executing a plurality of instructions stored on the memory, the instructions including:

instructions for maintaining a state diagram associating each of the masks with one of the fabrication or management states, wherein the state diagram is updated as a mask is transferred from one state to another;

instructions for determining a future state for each of the masks within the virtual fabrication environment using the state diagram; and

instructions for enabling the customer to monitor a mask and its associated state and to alter at least one of the associated state or the future state for the mask via the central operation entity.